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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

#23
LDJ
11-10-03

In re application of

Jorg SCHABERNACK, et al.

Docket No: Q54532

Appln. No.: 09/328,893

Group Art Unit: 2155

Confirmation No.: 7430

Examiner: Duong, Oanh L.

Filed: June 9, 1999

For: MANAGEMENT OF A NETWORK ELEMENT USING MANAGED OBJECTS IN A DIGITAL COMMUNICATIONS NETWORK

SUBMISSION OF APPELLANT'S BRIEF ON APPEAL

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MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an original and two copies of Appellant's Brief on Appeal. A check for the statutory fee of $320.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

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For: MANAGEMENT OF A NETWORK ELEMENT USING MANAGED OBJECTS IN A DIGITAL COMMUNICATIONS NETWORK

APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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Sir:

In accordance with the provisions of 37 C.F.R. § 1.192, Appellant submits the following:

I. REAL PARTY IN INTEREST

The real party in interest is Alcatel, by virtue of an assignment executed by the Appellants, Jörg Schabernack and Monika Banzhaf, on May 19, 1999, and recorded by the Assignment Division of the U.S. Patent and Trademark Office on June 9, 1999 (at Reel 010025, Frame 0419), in the parent application (Serial Number No. 09/328,893) of the present application captioned above.

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II. RELATED APPEALS AND INTERFERENCES

To the best of the knowledge and belief of the Appellants, the Assignee and the undersigned, there are no other appeals or interferences before the Board of Appeals and Interferences that will directly affect or be affected by the Board's decision in the present Appeal.

III. STATUS OF CLAIMS

The present application was filed with claims 1-10 on June 9, 1999. In an Amendment filed August 28, 2002, claims 1, 7, and 9 were amended. Claims 1, 7, and 9 were further amended by Preliminary Amendment filed September 30, 2002. In addition, claim 10 was amended by the same Preliminary Amendment of September 30, 2002. By Amendment of January 22, 2003, claim 10 was further amended. Accordingly, claims 1-10 are all the claims currently pending in the application. Claims 1-3 and 5-10 stand presently rejected under 35 U.S.C. § 103(a) as being unpatentable over Bennett et al. (US Patent No. 5,189,733) in view of Mishra (US Patent No. 6,339,587). Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bennett in view of Mishra and further in view of Finni (US Patent No. 5,941,978). This appeal is directed to claims 1-10.

IV. STATUS OF AMENDMENTS

No amendments to the claims were filed subsequent to the final Office Action dated April 1, 2003. Thus, all amendments have been entered.

V. SUMMARY OF THE INVENTION

The present invention is directed to managing a network element using managed objects in a digital communications network.[1]

Fig. 1 of the present application shows the interconnection of components of a network element for a digital communications network. The components include a controller FLT and a database DB and memory MEM connected thereto. Both the database DB and the memory MEM store managed objects. The interconnection forms part of a network element (not shown) for a Synchronous Digital Hierarchy (SDH) network.[2]

The memory MEM contains managed objects MO1 and MO2, for example. The database DB, which is, for example, implemented on a hard disk, contains managed objects that were swapped out of the memory MEM, e.g., the managed object MO*. The controller FLT processes requests RQ to access these managed objects.[3]

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[1] See title of application text

[2] See application text, page 4, third paragraph

[3] See application text, page 4, fourth paragraph

Fig. 2 is a flowchart showing the steps of a method 100 for managing the network element.[4]

In a first step 110, in response to a request to access the managed object MO*, it is determined whether the requested managed object MO* is stored in the memory MEM. If the requested managed object MO* is not in the memory MEM, it is determined, in a second step 120, whether there is sufficient memory space in the memory MEM.[5]

If there is not sufficient memory space in the memory MEM, in step 130, stored managed objects are swapped out of the memory MEM in accordance with predeterminable criteria, in order to make room for the requested managed object MO*.[6] For example, in step 130, the managed object MO1 shown in Fig. 1 is removed from the memory MEM and written into the database DB, where it can be retrieved upon subsequent requests.[7]

In a next step 140, the requested object MO* is transferred from the database DB into the memory MEM.[8] In a last step 150, the network element is managed in response to requests by accessing the memory MEM and using the managed objects stored therein.[9]

[4] See application text, page 5, third full paragraph

[5] See application text, page 6, first full paragraph

[6] See application text, page 6, first full paragraph

[7] See application text, page 6, last paragraph

[8] See application text, page 7, first paragraph

[9] See application text, page 7, second paragraph

Stated differently, if the requested managed object MO* is not yet or is no longer stored in the memory MEM (step 110), then the requested managed object MO* will be retrieved from the database DB and, if there is sufficient memory space in the memory MEM (step 120), the requested managed object MO* will be written (back) into the memory MEM (step 140). If there is not sufficient memory space in the memory MEM (step 120), room is made by swapping out "old" managed objects (step 130). Each request is processed by accessing the memory MEM (step 150).[10]

VI. ISSUES

One issue raised in this appeal is whether or not claims 1-3 and 5-10 are unpatentable under 35 U.S.C. § 103(a) over Bennett et al. (US Patent No. 5,189,733) in view of Mishra (US Patent No. 6,339,587). Another issue in this appeal is whether or not claim 4 is unpatentable under 35 U.S.C. § 103(a) over Bennett et al. in view of Mishra and further in view of Finni (US Patent No. 5,941,978).

VII. GROUPING OF CLAIMS

For purposes of this appeal, claims 1-10 stand or fall together as a group.

[10] See application text, page 7, fourth full paragraph

VIII. ARGUMENTS

Claim 1 is directed to a method, in which, in response to a request for access to one of a plurality of managed objects, it is checked whether this requested object is stored in a memory of a network element connected to a Synchronous Digital Hierarchy (SDH) network. If the requested object is not stored in the memory, it is checked whether there is sufficient memory space to write the requested object into the memory. If there is not sufficient memory space, then at least one of the stored objects is swapped out of the memory to a database in accordance with at least one predeterminable criterion. Then the requested object is read from the database and written into the memory.

Appellants emphasize that the "objects" recited in claim 1 are expressly recited as being managed objects.

Claim 1 is representative of the claims finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Bennett (US Patent No. 5,189,733) in view of Mishra (US Patent No. 6,339,587). Accordingly, the following arguments apply either identically or analogously to the other pending claims 2-10.

Neither the Bennett reference nor the Mishra reference teaches or suggests "managed objects" as properly interpreted by a person skilled in the art of managing network elements in digital communications systems

The Bennett reference is directed to an application program memory management system and relates to the management of memory resources in a computer.[11] In other words, the Bennett reference addresses the problem that there is continuing competition among application programs for main memory capacity. Such application programs include, e.g., word processing programs, spread sheet programs, etc. It is the responsibility of the application software to manage the allocation of its available main memory space during an execution session.[12]

As shown in Fig. 1B of the reference, Bennett's invention may be embodied in a computer system 100 comprising a central processor 101, a main memory 102, an input/output controller 103, and a plurality of input/output devices 104. The various components of the system 100 communicate through a system bus 105 or similar architecture. In a preferred embodiment, the system 100 is an IBM-compatible personal computer.[13]

As shown in Fig. 9 of the reference, the overall operation of the memory management system of Bennett's invention is summarized by a flowchart 900. When an object is called (e.g., by another code object or procedure), in step 901, the routine 900 determines if the object is non-

[11] See Bennett reference, col. 1, ln. 1-7

[12] See Bennett reference, col. 1, ln. 13-30

[13] See Bennett reference, col. 4, ln. 7-16

resident, i.e., not present in the main memory 102. If an object is non-resident ("yes" at step 901), then the object will be swapped into the memory 102 as follows. In step 902, the main memory 102 is checked to determine if sufficient memory space is available for the desired object. If additional memory space is required ("yes" at step 902), then available memory is increased by swapping out one of more objects (using any desired method to determine objects which may be swapped, such as the least recently used algorithm). After sufficient memory has been freed in step 903, in step 904, the desired object is swapped in. In a typical embodiment, such as the system 100, the object would be copied from an I/O device 104 (e.g., hard disk) to the main memory 102. However, if the object that is called is already resident ("yes" at step 901), then steps 902-904 are skipped.[14]

Bennett, however, does not teach or suggest the swapping of "managed objects", as recited in claim 1 and as interpreted by a person skilled in the art of managing network elements in digital communications systems. Instead, the objects that are swapped in the Bennett reference are "code objects", i.e., parts of software executable on Bennett's computer system 100.

MPEP § 2111.01 (under the heading "'Plain Meaning' Refers To The Meaning Given To The Term By Those Of Ordinary Skill In The Art" on page 2100-48) mandates that "[w]hen not defined by applicant in the specification, the words of a claim must be given their plain meaning. In other words, they must be read as they would be interpreted by those of ordinary skill in the

[14] See Bennett reference, col. 7, ln. 3-25

art" (emphasis added). Further, "[W]ords in patent claims are given their ordinary meaning in the usage of the field of the invention ..." (emphasis added).

In addition, pursuant to MPEP § 2173.05(a), "[t]he meaning of every term used in a claim should be apparent from the prior art ***or*** from the specification and drawings at the time the application is filed (emphasis added)."

Here, the meaning of the term "managed object" is clear from the prior art in the field of the present invention, namely the field of managing network elements of a digital communications network (see, e.g., title of the application).

For example, the application text on page 1, second paragraph, refers to the article "Management von SDH-Netzelementen: eine Anwendung der Informationsmodellierung", which describes a method and hardware for managing network elements in digital communications systems using managed objects. (This article was submitted to the USPTO with Appellants' Information Disclosure Statement filed on June 9, 1999.)

As disclosed on page 331, second and third columns, of that article:

> [a]ccording to the OSI System Management model, a system is composed of a set of resources that exist to provide services to a user. These resources may exist independently of their need to be managed. System management defines the management view of a resource as a managed object (MO) which represents the resource, for the purpose of management, at the interface of the system. The managed object acts as the recipient for the management operations issued by the manager and is responsible for sending reports related to spontaneous events that happen in the system. All relevant data is thus encapsulated with MOs and can only be referenced or changed by the defined methods of the MOs.

Further, page 332, first and second columns, state that managed objects have properties such as "Attribute", "Notification", "Action", "Behaviour", and "Name Binding".

As another prior art example, Appellants note US Patent No. 6,499,059 to Banzhaf, which is directed to a method of controlling a network element. Therein, "network elements" include crossconnects, add/drop multiplexers, and line multiplexers.[15]

The '059 patent clarifies that "[f]unctions of the network elements are described and implemented in the form of managed objects (MO)" (emphasis added).[16] As further clarified:

> [m]anaged objects are images of physical or virtual components of the network element which describe the static and dynamic properties of the respective component. A managed object is an instance of a managed-object class. Such a managed-object class is defined by its attributes, the operations that can be performed by its objects, the notifications that can be emitted by its objects, and its related behavior. Each managed object has an unambiguous, distinguished name. From a management point of view, a managed object exists if it has a distinguished name and supports the operations and notifications defined for its class. The entirety of the managed objects existing in a network element, together with their attributes, is referred to as the Managed Information Base (MIB), and reflects the current configuration of the network element.[17] ... For example, managed objects of the network element "crossconnect" are objects for switched connections, for termination points of the switching matrix of the crossconnect, for physical assemblies and boards, and for result files of regular performance monitoring operations in the network element.[18]

In addition, Appellants refer to CCITT Recommendation X.720, which was submitted to the USPTO concurrently with the "Response under 37 C.F.R. § 1.116" filed on July 1, 2003. The CCITT Recommendation X.720 is issued by the International Telecommunication Union, and serves as further evidence that the term "managed object" is a term of art used in the art of

[15] See US Patent No. 6,499,059; col. 1, ln. 19-20

[16] See US Patent No. 6,499,059; col. 1, ln. 29-31

[17] See US Patent No. 6,449,059; col. 2, ln. 45-59; emphasis added

[18] See US Patent No. 6,499,059; col. 3, ln. 37-44; emphasis added

network management (see, e.g., pages 1 and 5 of CCITT Recommendation X.720). For example, page 5 of the CCITT document states that "[m]anaged objects are abstractions of data processing and data communications resources (e.g. protocol state machines, connections, and modems) for the purposes of management."

Finally, Appellants refer to a definition of the term "managed object" from the web site of the Institute for Telecommunication Sciences (which is the research and engineering branch of the National Telecommunications and Information Administration), which defines a "managed object", in the context of a network, as "an abstract representation of network resources that are managed." This definition was also submitted to the USPTO on July 1, 2003. As pointed out in the definition, "[a] managed object may represent a physical entity, a network service, or an abstraction of a resource that exists independently of its use in management."

Again, MPEP §§ 2111.01 and 2173.05(a), cited above, mandate that the term "managed object" in Appellants' application text and claims <u>must</u> be read as it would be interpreted by those of ordinary skill in the art, and is given its ordinary meaning in the usage of the field of the invention (i.e., the field of managing network elements of a digital communications network).

Clearly, as reflected by the extensive factual evidence above regarding the meaning of the term "managed object", a person skilled in the art of managing network elements would recognize and interpret the term "managed object" as a term of art. More specifically, a person skilled in the art of managing network elements in digital communications networks understands that "managed objects" are images of physical or virtual components of a network element which describe the static and dynamic properties of the respective component.

No swapping of such "managed objects" is taught or suggested in the Bennett and Mishra references. Instead, the Bennett reference discloses the swapping of code objects, i.e., the swapping of parts of application software that is executable on a single computer 100. Through the swapping of the code objects, the resources of the computer memory 102 are managed (see Fig. 1B), so that an application program can run more smoothly on the computer 100. Swapping different parts of application software into and out of a memory of a computer, however, is unrelated to, and therefore would not teach or suggest, swapping managed objects (as defined in the prior art and as understood by a person skilled in the art of managing network elements) in order to manage network elements, such as cross-connects, add/drop multiplexers, or line multiplexers.

The Mishra reference does not teach or suggest this concept either. Rather, the Mishra reference merely teaches an SDH network 91 that connects various nodes, such as nodes 1, 2, 3, 4; second level nodes 211 to 214; 321-324; 411-415, and 431-434, etc.[19] These nodes are add-drop multiplexers and cross-connects, which have associated multiplexers.[20] However, just like in the Bennett reference, there is no teaching or suggestion in the Mishra reference that managed objects, as defined in the prior art and as understood by a person skilled in the art of managing network elements in digital communications networks, are swapped into and out of a memory.

[19] See Mishra reference, col. 5, ln. 52, to col. 6, ln. 6

[20] See Mishra reference, col. 6, ln. 7-13

The reasoning for rejecting Appellants' arguments is defective

In the Advisory Action dated July 11, 2003, the Examiner characterizes Appellants' arguments regarding the interpretation of the term "managed object", which are set forth in the "Response under 37 C.F.R. § 1.116" filed on July 1, 2003, as unpersuasive. The Examiner reasons that "[t]he claims are given the broadest reasonable interpretation consistent with the specification" and refers to *In re Morris*, 127 F.3d 1048 as legal authority for this statement (see Continuation Sheet of the Advisory Action).

First, Appellants point out that the above-discussed article "Management von SDH-Netzelementen: eine Anwendung der Informationsmodellierung" is referenced in the "Background of the Invention" section of Appellants' specification. The article is directed to a method and hardware for managing network elements in digital communications networks, i.e., to the same field as the field of Appellants' invention.[21] Further, the background section of the application expressly states that, in this article, "[m]anagement is provided by accessing managed objects, which contain all relevant data. On page 332 of the article, the properties of the managed objects ... are described."[22]

By Appellants' explicit efforts to refer in their specification to an article that is in the same field as that of Appellants' invention (namely the field of managing network elements in digital communications systems) and that contains teachings relating to "managed objects" in

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[21] See application text, page 1, second full paragraph

[22] See application text, page 1, second full paragraph (and bridging over to page 2) (emphasis added)

that field, Appellants have shown that the term "managed object" in the application is to be given the interpretation of a person skilled in the field of managing network elements in digital communications networks.

Thus, Appellants' interpretation of the claimed term "managed object" (as discussed above) is, indeed, congruent with "the broadest reasonable interpretation consistent with the specification".

Second, in *In re Morris*, the CAFC notes that "some cases state the standard as 'the broadest reasonable interpretation'" and that "others include the qualifier 'consistent with the specification' or similar language."[23] The CAFC unequivocally points out that:

> either phrasing connotes the same notion: as an initial matter, the PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification.[24]

In other words, the language of the claims must not be given its broadest reasonable interpretation per se. Nor does the law provide that the language of the claims is to be given the broadest reasonable interpretation by the Examiner. Instead, as stressed by the CAFC in *In re Morris*, the law mandates that the language of the claims must be given the broadest reasonable interpretation by a person skilled in the art.

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[23] *In re Morris*, 127 F.3d 1048 at 1054

[24] *In re Morris*, 127 F.3d 1048 at 1054 (emphasis added)

Here, as evidenced by the voluminous factual proof in the prior art materials discussed above, a person skilled in the art would interpret the term "managed object" as a term of art, i.e., as a term that has a certain technical meaning or definition in the field of managing network elements of digital communications networks. That technical meaning or definition of the term "managed object" is, as demonstrated above, clearly distinct from the meaning of the term "code object" taught in the Bennett reference. Consequently, the term "code object" in Bennett cannot be read on the term "managed object" in Appellants' claims.

In addition, since Appellants' specification refers to an article that is in the same field as that of Appellants' invention and that contains teachings relating to "managed objects" in that field, Appellants do provide, as formulated in *In re Morris*, "...by way of definitions or otherwise ... afforded by ... applicant's specification", "enlightenment" as to how the term "managed object" is to interpreted. Such an interpretation of the term "managed object" can only be that of a person skilled in the field of the invention (namely the field of managing network elements in digital communications networks), and not an interpretation in the sense of Bennett's "code objects" in the field of application program memory management for a memory in a computer.

Third, Appellants note that the Examiner's statement "[s]ee MPEP § 2111 - § 2116.01 for case law pertinent to claim analysis" on the Continuation Sheet of the Advisory Action dated July 11, 2003, is merely a general statement that provides no specifics as to why the patentability arguments set forth in Appellants' "Response under 37 C.F.R. § 116" are allegedly unpersuasive. In particular, the Examiner fails to point out specifically which cases or specifically which

provisions in MPEP § 2111 - § 2116.01 allegedly contradict Appellants' position that the term "managed object" is to be interpreted as viewed by a person skilled in the art of managing network elements in digital communications networks.

There is no motivation in the prior art made of record to combine the Bennett and Mishra references

Independent claim 1 is directed to a method, wherein, among other things, a network element is connected to a Synchronous Digital Hierarchy (SDH) network.

The Examiner acknowledges in item 3 of the final Office Action dated April 1, 2003, that "Bennett does not disclose a Synchronous Digital Hierarchy network as claimed." However, citing col. 5, ln. 52, to col. 6, ln. 65, of the Mishra reference, the grounds of rejection state that "Mishra discloses a Synchronous Digital Hierarchy network (SDH network 91)" and propose that it would have been obvious to incorporate Mishra's SDH network into Bennett's system.

The Mishra reference teaches that, in an SDH network, traffic capacity can be booked in advance, on request of the user of the SDH network. It is then necessary to meet this request by allocating a path through the network having the required capacity. Therein, the customer may have specific requirements. For example, two or more independent paths may be required,

which share no individual links or nodes, to ensure that an individual failure does not result in loss of the entire booked capacity.[25]

In other words, Mishra discloses a method of operating a network management system for a telecommunications network in order to satisfy a request for a connection path having a specified capacity between two specified terminations of the network. Therein, the method searches a store of routings and available capacities to identify a connection path to satisfy the request; determines whether a connection path with adequate capacity is present in the store; if no such path is present in the store, tests a model of the network to identify at least one suitable connection path between the requested terminations and adds any suitable connection paths so identified to the store; and, upon identifying a connection path having the requested capacity between the requested terminations, allocates the identified connections so as to satisfy the request.[26]

Fig. 1 of the Mishra reference shows an SDH network 91 utilized in an exemplary embodiment.

However, there is no teaching or suggestion in col. 5, ln. 52, to col. 6, ln. 65, cited by the Examiner, or in any other part of the Mishra reference, that would have motivated a person skilled in the art to use Mishra's SDH network in a method as claimed in claim 1, which checks, in response to a request for access to one of a plurality of managed objects, whether this

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[25] See Mishra reference, col. 2, ln. 29-36

[26] See Mishra reference, col. 3, ln. 39-56

requested object is stored in a memory of a network element connected to a Synchronous Digital Hierarchy network; which, if this requested object is not stored in the memory, checks whether there is sufficient memory space to write this object into the memory; which, if there is no sufficient memory space, swaps at least one of the stored objects out of the memory to a database according to at least one predeterminable criterion; and which reads the requested object from the database and writes it into the memory.

Instead, col. 5, ln. 52, to col. 6, ln. 65, cited by the Examiner, merely describes various parts of the tiered Synchronous Digital Hierarchy network 91 shown in Fig. 1 (such as nodes, trunk connections, tier rings, add-drop multiplexers, cross-connects); a diagrammatic representation of an STM-1 module shown in Fig. 2; and various parts of a network management system 200, shown in Fig. 3, for managing the Synchronous Digital Hierarchy network 91 shown in Fig. 1.

It is not apparent from these descriptions of the various structures of the Synchronous Digital Hierarchy network 91, the STM-1 module, and the network management system 200, how or why a person skilled in the art would have been motivated to use the Synchronous Digital Hierarchy network 91 in the method claimed in claim 1, which recites the above-mentioned various checking, swapping, reading, and writing steps.

The motivation suggested in the grounds of rejection ("it would have been obvious to have used the Synchronous Digital Hierarchy network in Bennett as taught by Mishra because it not only allows transmission at variable bit rates to be carried, but allows individual signals to be added or extracted without demultiplexing other signals multiplexed with it") is taken from

Mishra's "Background of the Invention" section (specifically: col. 1, ln. 47-51). Col. 1, ln. 47-51, teach that these features mentioned in the motivation suggested by the Examiner are standard for Synchronous Digital Hierarchy networks. However, it is not apparent how, without more, the mere teaching of these standard features of Synchronous Digital Hierarchy networks would have motivated a person skilled in the art to use a Synchronous Digital Hierarchy network in the method of claim 1, which recites the above-mentioned various checking, swapping, reading, and writing steps. No such motivation is suggested in col. 1, ln. 47-51.

Moreover, in the "Response to Arguments" section of the final Office Action dated April 1, 2003, the Examiner equates Bennett's computer system (such as the computer system 100 shown in Fig. 1B of the Bennett reference) with the claimed "network element". The "Response to Arguments" section states that the reason to connect the network device (computer system) to the SDH network is to allow data transmission to and from the network device to be carried at different bit rates and to allow data to be transmitted digitally (the natural form for computer data). In addition, item 3 of the final Office Action dated April 1, 2003, proposes that it would have been obvious to have used the Synchronous Digital Hierarchy network in Bennett as taught by Mishra because it allows individual signals to be added or extracted without demultiplexing other signals multiplexed with it.

First, Appellants point out that Bennett's computer system 100 is not a network element but a terminal. Network elements are devices that make up the functionality of a network. Examples of "network elements" are cross-connects, add-drop multiplexers, and/or line mulitplexers, as taught, e.g., in Appellants' application, in the Mishra reference, and in US Patent

No. 6,499,059.[27] Terminal devices, on the other hand, such as Bennett's computer system 100, use a network to communicate. There is no reason to manage that kind of terminal. Mishra's SDH network 91, as shown in Fig. 1 of the reference, connects various nodes, such as nodes 1, 2, 3, 4; second level nodes 211 to 214; 321 to 324; 411 to 415; and 431 to 434, etc. These nodes are, as noted above, add-drop multipexers and cross-connects, which have associated multiplexers. There is, however, no teaching or suggestion in the Mishra reference that these nodes can be computer systems, such as Bennett's computer system 100. In fact, if a person skilled in the art intended to interconnect computer systems, one would have choosen an existing computer network technique, such as Ethernet or PPP, i.e., a packet-oriented data transmission technique, rather than a synchronous transmission technique such as SDH. For at least these reasons, there is no motivation or suggestion to include managed objects into Bennett's computer system 100.

Second, there is no teaching or suggestion of record motivating a person skilled in the art to provide data transmission to and from Bennett's computer system 100 at different bit rates. The Bennett reference is merely concerned with a method of swapping objects in order to manage memory resources in a computer, such as the computer system 100. The Bennett reference nowhere teaches or suggests that data transmission at different bit rates should be provided to carry out Bennett's method.

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[27] See application text, page 7, last paragraph, and claim 10; see Mishra reference, col. 6, ln. 7-8; see US Patent No. 6,499,059, col. 1, ln. 19-20

Third, regarding the proposed motivation for connecting Bennett's computer system 100 to an SDH network because this would allow data to be transmitted digitally, Applicants note that, since the system 100 is a computer, data transmission already takes place in digital form. It is well known in the art of computers that the different parts of a computer exchange data digitally. It is not necessary to connect a computer to any network in order to merely achieve digital data transmission. Rather, digital data transmission is already accomplished by the computer system 100 as disclosed in the Bennett reference. Therefore, a person skilled in the art would not have been motivated to connect Bennett's computer system 100 to an SDH network, in order to allow for digital data transmission.

Fourth, referring to the proposed motivation for connecting Bennett's computer system 100 to an SDH network because this "allows individual signals to be added or extracted without demultiplexing other signals multiplexed with it", neither the Bennett reference nor the Mishra reference teach or suggest adding or extracting such signals in a method of swapping objects so as to manage the memory resources in a computer (such as the method taught in Bennett). In fact, this motivational statement merely reflects a standard feature of SDH networks, as evidenced by the teachings in col. 1, ln. 47-55, of the Mishra reference. However, the teaching of a mere standard feature of an SDH network does not, without more, motivate a person skilled in the art to connect a computer system, in which objects are swapped for managing the resources of the main memory (such as Bennett's computer system 100), to an SDH network.

Conclusion

For at least the reasons set forth above, Appellants respectfully request the Board to reverse the rejection of all the appealed claims and to find each of the claims allowable as defining subject matter which would not have been obvious under 35 U.S.C. § 103 at the time such subject matter was invented.

The present Brief on Appeal is being filed in triplicate. Unless a check is submitted herewith for the fee required under 37 C.F.R. §1.192(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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APPENDIX

CLAIMS 1-10 ON APPEAL:

1. A method (100) comprising the steps of:

checking in response to a request (RQ = RQ*) for access to one (MO*) of a plurality of managed objects (MOl, MO2, MO*) whether this requested object (MO*) is stored in a memory (MEM) (step 110) of a network element connected to a Synchronous Digital Hierarchy (SDH) network;

if this requested object (MO*) is not stored in the memory (MEM), checking whether there is sufficient memory space to write this object (MO*) into the memory (MEM) (step 120);

if there is no sufficient memory space, swapping at least one (MOl) of the stored objects (MO1, MO2) out of the memory (MEM) to a database (DB) according to at least one predeterminable criterion (step 130); and

reading the requested object (MO*) from the database (DB) and writing it into the memory (MEM) (step 140).

2. A method (100) as claimed in claim 1 wherein based on the criterion, the objects (MO2) which are accessed most frequently remain in the memory (MEM).

3. A method as claimed in claim 2 wherein only a predeterminable number of recently accessed objects remain in the memory.

4. A method as claimed in claim 1 wherein the predeterminable criterion is a filter function, particularly a CMISE filter function, which indicates which objects are to remain stored in the memory.

5. A method as claimed in claim 1 wherein the predeterminable criterion is a length of time which indicates how long each of the objects may remain stored in the memory.

6. A method as claimed in claim 1 wherein the predeterminable criterion is a maximum number which indicates how many objects may remain stored in the memory.

7. A network element for a Synchronous Digital Hierarchy (SDH) network comprising a controller (FLT) for managing the network element using managed objects (MOl, MO2, MO*), a memory (MEM) connected to the controller (FLT), and a database (DB) connected to the controller (FLT), wherein the network element is connected to the Synchronous Digital Hierarchy network, wherein the controller (FLT), in response to requests (RQ), manages the network element by accessing the memory (MEM) and using the objects (MO1, MO2, MO*) stored therein, wherein, in response to a request (RQ = RQ*) for access to one (MO*) of the managed objects (MOl, MO2, MO*), the controller (FLT) checks whether this requested object (MO*) is stored in the memory, wherein, if this requested object (MO*) is not stored in the memory (MEM), the controller (FLT) checks whether there is sufficient memory space to write this object (MO*) into the memory (MEM), wherein, if there is no sufficient memory space, the

controller (FLT) causes at least one (MO1) of the stored objects (MO1, MO2) to be swapped out of the memory (MEM) to a database (DB) according to at least one predeterminable criterion, and wherein the controller (FLT) reads the requested object (MO*) from the database (DB) and writes it into the memory (MEM).

8. A network element as claimed in claim 7 wherein the memory is a semiconductor memory (MEM), and wherein the database (DB) is implemented on a nonvolatile mass storage, particularly on a hard disk.

9. A Synchronous Digital Hierarchy (SDH) network with network elements, each network element comprising a controller (FLT) for managing the network element using managed objects (MO1, MO2, MO*), a memory (MEM) connected to the controller (FLT), and a database (DB) connected to the controller (FLT), wherein each network element is connected to the Synchronous Digital Hierarchy (SDH) network, wherein the controller (FLT), in response to requests (RQ), manages the network element by accessing the memory (MEM) and using the objects (MOl, MO2, MO*) stored therein, wherein, in response to a request (RQ = RQ*) for access to one (MO*) of the managed objects (MO1, MO2, MO*), the controller (FLT) checks whether this requested object (MO*) is stored in the memory, wherein, if this requested object (MO*) is not stored in the memory (MEM), the controller (FLT) checks whether there is sufficient memory space to write this object (MO*) into the memory (MEM), wherein, if there is no sufficient memory space, the controller (FLT) causes at least one (MO1) of the stored objects

(MO1, MO2) to be swapped out of the memory (MEM) to a database (DB) according to at least one predeterminable criterion, and wherein the controller (FLT) reads the requested object (MO*) from the database (DB) and writes it into the memory (MEM).

10. The Synchronous Digital Hierarchy (SDH) network as claimed in claim 9, wherein the network elements are at least one of crossconnects, add-drop multiplexers, and line multiplexers.